Science, Technology, and Life

written by Saarani Vengadesen | 20/09/2022

The carbon footprint is the amount of carbon dioxide gas released into the atmosphere due to human activities. Global warming and climate change are considered world issues due to the high carbon footprint, which keeps increasing. These phenomena are the cause of the occurrence of major natural disasters such as floods, typhoons, scorching weather and drought. The disasters will destroy our tropical regions, rich in biodiversity and abundant natural resources.

With these concerns, in September 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals (SDGs). Climate Action is one of the SDGs directly related to these issues. Goal 13 is to take urgent action to combat climate change and its impacts. As the global emissions of carbon dioxide and greenhouse gases are alarming and showing no sign of peaking, everyone must be responsible for reducing their carbon footprint. Thus, science and technology must work together to create innovations to solve practical problems and serve our needs.

The transportation sector plays an essential role in economic growth but, at the same time, harms the environment. Combusting fossil fuels, such as petroleum and diesel, in motorised vehicles releases soot, carbon dioxide, nitrogen oxides and carbon monoxide into the air. These greenhouse gases contribute to global warming and world climate change. Motorised vehicles can use alternative energy and modern technology that release fewer greenhouse gases. For example, make the change from petrol-based cars to solar-electric cars. Nowadays, it is observed that few charging stations are available for charging electric cars, which promotes a clean, green and healthy lifestyle.

Forty per cent of the world's agricultural area is located in the Tropics, which has become one of the concerns as the increase in population leads to high demand for meat sources. Animal faeces contribute to the increase of greenhouse gases such as methane. Therefore, treating and processing the faeces through biological processes in which wastes are treated naturally will reduce the release of greenhouse gases and can be used as compost fertilisers. For example, anaerobic digestion without oxygen in the decomposition process produces organic

fertilisers and gases used in biogas. This type of technology reduces the rate of greenhouse gases released during the digestion process. The methane gas produced can be used to cook and generate electricity.

Logging and forest burning to clear lands for agricultural activities like farming, husbandry, and aquaculture can cause haze and global warming. Deforestation for the construction of highways and public transportation disrupts biodiversity. These activities increase the carbon dioxide in the air as no photosynthesis can be carried out by green plants and destroy the natural habitats of flora and fauna. As such, forests play an essential role in ensuring a sustainable environment. Biotechnological methods in agriculture, such as vertical farming, hydroponics and aquaponics, can address the shortage of farming land. Recycling, reducing, and reusing paper can be the most straightforward practices to minimise waste production and help with deforestation. The recycled paper can be processed using the technology and repurposed for other uses. These moves support SDG 15 – Life on Land, which we need to protect, restore, and promote the use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss.

We owe a lot to Mother Nature. It is a chance to reflect on how we treat Mother Earth now before it is too late. Our nature is suffering, and it urges a call to action. It is our responsibility to act upon it for the betterment of humankind. Scientific knowledge is used to create new technologies that serve a societal need to solve socio-scientific issues and save nature. Thus, science and technology work hand in hand as technology is the practical application of science, so these two branches are inseparable. To conclude, as Henry Ford said in his famous quote, "Coming together is a beginning. Keeping together is progress. Working together is success".

Note: *This essay was written by Muhammad Dannish Lian bin Harrisson Amat who is currently a student at Sekolah Menengah Sains Kuching Sarawak. His essay was selected as the 3rd place winner of English category of the 2022 Science for Youth Global Essay Competition held by the Mahathir Science Award Foundation. In this competition, participants were asked, "How can science and technology remedy the issues faced by tropical regions?".*